

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A heat rod assembly for a pre-heater used in a vehicle, the heat rod assembly comprising:

a channel type lower heat rod;

an insulator installed at a bottom portion of the lower heat rod;

a positive terminal fixedly installed on the insulator lengthwise along the insulator;

a PTC device coupled to the insulator by interposing the positive terminal therebetween;

and

an upper heat rod for covering an opening section of the lower heat rod;

wherein the insulator is formed with a bottom recess, which extends lengthwise along the insulator in order to receive the positive terminal therein, and wherein the insulator is provided at both longitudinal ends thereof with fixing protrusions, which are inserted into coupling holes formed in the positive terminal.

2. (Previously Presented) The heat rod assembly as claimed in claim 1, wherein an upper edge section of the lower heat rod is inwardly bent such that the upper edge section covers an edge section of the upper heat rod.

3. (Previously presented) The heat rod assembly as claimed in claim 2, wherein an inner width of the lower heat rod is identical to an outer width of the insulator.
4. (Canceled)
5. (Canceled)
6. (Currently Amended) The heat rod assembly as claimed in claim 1 ~~[[5]]~~, wherein stepped recesses are formed at both sides of the bottom recess of the insulator, insertion protrusions are formed in the stepped recesses, and a distance between the insertion protrusions is identical to a length of the PTC device.
7. (Previously Presented) The heat rod assembly as claimed in claim 1, wherein the PTC device is positioned on the insulator corresponding to openings formed in the insulator by interposing the positive terminal between the PTC device and the insulator.
8. (Currently Amended) A pre-heater for a vehicle, the pre-heater comprising :
a heat rod assembly described in any one of claims 1, 2, 3, 6 and 7 ~~to 7~~;
a heat pin assembly formed at both sides of the heat rod assembly in parallel to each other; a negative terminal aligned in parallel to the heat pin assembly;

side frames coupled to both sides of a coupling structure consisting of the heat rod assembly, the heat pin assembly and the negative terminal; and
housings for coupling the heat rod assembly, the heat pin assembly, the negative terminal, and the frames with each other at front and rear portions thereof.

9. (Previously Presented) The pre-heater as claimed in claim 8, further comprising a coupling unit laterally provided over middle parts of the heat rod assembly, the heat pin assembly and the negative terminal in order to couple the heat rod assembly, the heat pin assembly and the negative terminal with each other.

10. (Previously Presented) The pre-heater as claimed in claim 9, wherein the coupling unit includes a clip capable of coupling the heat rod assembly, the heat pin assembly and the negative terminal with the side frames.

11. (Currently Amended) A pre-heater for a vehicle, the pre-heater comprising :

a heat rod assembly comprising:

a channel type lower heat rod;

an insulator installed at a bottom portion of the lower heat rod;

a positive terminal fixedly installed on the insulator lengthwise along the insulator;

a PTC device coupled to the insulator by interposing the positive terminal therebetween; and
an upper heat rod for covering an opening section of the lower heat rod;
a heat pin assembly formed at both sides of the heat rod assembly in parallel to each other;
a negative terminal aligned in parallel to the heat pin assembly;
side frames coupled to both sides of a coupling structure consisting of the heat rod assembly, the heat pin assembly and the negative terminal; and
 housings for coupling the heat rod assembly, the heat pin assembly, the negative terminal, and the frames with each other at front and rear portions thereof;
wherein the coupling unit includes a clip capable of coupling the heat rod assembly, the heat pin assembly and the negative terminal with the side frames; and
The pre-heater as claimed in claim 10, wherein the side frames have a channel structure, both ends of the clip are bent such that the both ends of the clip are locked with flanges formed in upper portions of the side frames, and the housings have coupling slots, respectively, for receiving end portions of the side frames.

12. (Currently Amended) A pre-heater for a vehicle, the pre-heater comprising :

a heat rod assembly comprising:

a channel type lower heat rod;

an insulator installed at a bottom portion of the lower heat rod;

a positive terminal fixedly installed on the insulator lengthwise along the insulator;

a PTC device coupled to the insulator by interposing the positive terminal therebetween; and

an upper heat rod for covering an opening section of the lower heat rod;
a heat pin assembly formed at both sides of the heat rod assembly in parallel to each other;

a negative terminal aligned in parallel to the heat pin assembly;
side frames coupled to both sides of a coupling structure consisting of the heat rod assembly, the heat pin assembly and the negative terminal; and

housings for coupling the heat rod assembly, the heat pin assembly, the negative terminal, and the frames with each other at front and rear portions thereof;

The pre-heater as claimed in claim 8, wherein the heat pin assembly includes a plurality of corrugate pins, which are fixedly arranged lengthwise along a pin plate.

13. (Currently Amended) A pre-heater for a vehicle, the pre-heater comprising :

a heat rod assembly comprising:

a channel type lower heat rod;

an insulator installed at a bottom portion of the lower heat rod;

a positive terminal fixedly installed on the insulator lengthwise along the insulator;

a PTC device coupled to the insulator by interposing the positive terminal
therebetween; and
an upper heat rod for covering an opening section of the lower heat rod;
a heat pin assembly formed at both sides of the heat rod assembly in parallel to each
other;
a negative terminal aligned in parallel to the heat pin assembly;
side frames coupled to both sides of a coupling structure consisting of the heat rod
assembly, the heat pin assembly and the negative terminal; and
housings for coupling the heat rod assembly, the heat pin assembly, the negative terminal,
and the frames with each other at front and rear portions thereof;
~~The pre heater as claimed in claim 8;~~ wherein the heat pin assembly is coupled with the side
frames by interposing a pin protecting plate therebetween.